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| 10/823,657 | 04/14/2004 | Hiroyuki Hosaka | 119056 | 4966 |
| 25944 7590 05/31/2007 OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | EXAMINER LEWIS, DAVID LEE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/823,657

Applicant(s)

HOSAKA, HIROYUKI

Examiner

David L. Lewis

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6 ids.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1-9 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nose et al. (6819311 B2).**

As in claim 1, Nose et al. teaches of a driving method for an electro-optical apparatus, figures 4 and 7,

comprising an electro-optical element disposed between two substrates and switching elements disposed, respectively, at a plurality of pixels arranged in a matrix manner corresponding to intersections of a plurality of scanning lines and a plurality of signal lines, **column 7 lines 45-66, column 8 lines 1-30**

and the electro-optical apparatus being adapted to write a data signal of positive polarity and a data signal of negative polarity to each pixel via the switching elements alternately on a frame-to-frame basis, **column 8 lines 40-67, column 9 lines 50-67**

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including: after having written any one of the data signal of positive polarity and the data signal of negative polarity in each frame, a non-data signal having a same polarity as the written data signal and of a maximum voltage value is written to the pixels; and then after having written the non-data signal, a data signal having the opposite polarity from the data signal which is written in a previous frame is written to the pixels, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 2, Nose et al. teaches of the electro-optical element being liquid crystal, and a three-terminal switching element which is turned on when a scanning signal being supplied during each selection period that selects the plurality of scanning lines in sequence is employed as the switching element, and the data signal and the non-data signal supplied from the plurality of signal lines are written to the pixels in line sequence via the three-terminal switching element in the ON-state, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 3, Nose et al. teaches of driving method for an electro-optical apparatus, figures 4 and 7,

comprising an electro-optical element disposed between two substrates, and switching elements disposed, respectively, at a plurality of pixels arranged in a matrix manner corresponding to intersections between a plurality of scanning lines and a plurality of signal lines, **column 7 lines 45-66, column 8 lines 1-30,**

and the electro-optical device being adapted to write a data signal of positive polarity and a data signal of negative polarity to each pixel via the switching

elements alternately on a frame-to-frame basis in a pulse duration modulation system, **column 8 lines 40-67, column 9 lines 50-67**

including: after having written any one of the data signal of positive polarity and the data signal of negative polarity in each frame, a non-data signal having a same polarity and a same voltage as the written data signal and of a maximum pulse duration value is written to the pixels; **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7**

and after having written the non-data signal, a data signal having opposite polarity from the data signal which is written in the previous frame is written to the pixels, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 4, Nose et al. teaches of, the electro-optical element being a liquid crystal, a two-terminal switching element which is turned on when a differential voltage between positive or negative scanning voltage supplied via the scanning line alternately on a frame-to-frame basis during each selection period for selecting the plurality of scanning lines in sequence and a signal voltage supplied via the signal line during the each selection period exceeds a threshold is employed as the switching element, and the data signal or the non-data signal, which is the differential voltage, being written to the pixels during the each selection period in line sequence, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 5, Nose et al. teaches of each frame being divided into a first sub field and a second sub field, and a data signal having the opposite polarity from

the previous frame being written during the first sub field of the each frame, and the non-data signal being written during the second sub field of the each frame, **figures 4 and 7, items t1/t2 & V1-V4.**

As in claim 6, Nose et al. teaches of the period of time for writing and retaining the non-data signal in the second sub field being shorter than the period of time for writing and retaining the data signal in the first sub field, **column 11 lines 48-56.**

As in claim 7, Nose et al. teaches of one frame for writing the non-data signal being provided between two frames in which the data signals of the opposite polarity are written respectively, **figures 4 and 7, items t1/t2 & V1-V4.**

As in claim 8, Nose et al. teaches of a period of time for writing the data signal in the one frame provided between the two frames being shorter than a period of time for writing the data signals respectively in the two frames, **column 11 lines 48-56.**

As in claim 9, Nose et al. teaches of an electro-optical apparatus, **figure 11, 20, 26,**

comprising: an electro-optical element disposed between two substrates, **column 7 lines 45-66, column 8 lines 1-30;**

switching elements disposed, respectively, at a plurality of pixels arranged in a matrix manner corresponding to the intersections of a plurality of scanning lines and a plurality of signal lines, **column 7 lines 45-66, column 8 lines 1-30;**

the electro-optical apparatus being adapted to write a data signal of positive polarity and a data signal of negative polarity to each pixel via the switching elements alternately on a frame-to-frame basis, **column 8 lines 40-67, column 9 lines 50-67**

and further comprising: a three-terminal switching element as the switching element, which is turned on when a scanning signal is supplied during each selection period for selecting the plurality of scanning lines in sequence, **column 7 lines 45-66, column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7**

a scanning line driving circuit and a signal line driving circuit that drive the plurality of scanning line and the plurality of signal line, respectively, **figure 26 items 106 and 107;**

and a control circuit that controls the scanning line driving circuit and the signal line driving circuit in such a manner that after having written any one of the data signal of positive polarity and the data signal of negative polarity in each frame, a non-data signal having the same polarity as the written data signal and of maximum voltage value is written to the pixels, and after having written the non-data signal, a data signal having the opposite polarity from the data signal written in a previous frame is written to the pixels are provided, **figure 26 item 120, column 9 lines 50-67, figures 4 and 7.**

As in claim 11, Nose et al. teaches of each frame being divided into a first sub field and a second sub field, and a data signal having the opposite polarity from the previous frame is written during the first sub frame of the each frame, and the non-data signal is written during the second sub field of the each frame, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 12, Nose et al. teaches of the period of time for writing and retaining the non-data signal in the second sub field being shorter than the period of time for writing and retaining the data signal in the first sub field, **column 11 lines 48-56.**

As in claim 13, Nose et al. teaches of Electronic equipment, comprising the electro-optical apparatus, **column 11 lines 48-56.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 10 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nose et al. (6819311) in view of Yanagi et al. (6784863).**

As in claim 10, Nose et al. teaches of an electro-optical apparatus, figure 11, 20, 26,

comprising: an electro-optical element disposed between two substrates; column 7 lines 45-66, column 8 lines 1-30

switching elements disposed respectively at a plurality of pixels arranged in a matrix manner corresponding to the intersections of a plurality of scanning lines and a plurality of signal lines, column 7 lines 45-66, column 8 lines 1-30;

the electro-optical apparatus being adapted to write a data signal of positive polarity and a data signal of negative polarity to each pixel via the switching elements alternately on a frame-to-frame basis, column 8 lines 40-67, column 9 lines 50-67

and further comprising: a switching element as the switching element which is turned on when a data signal having a pulse duration according to a gray scale at a differential voltage between positive or negative scanning voltage supplied via the scanning line alternately on a frame-to-frame basis during each selection period for selecting the plurality of scanning lines in sequence and a signal voltage supplied via the signal line during the each selection period exceeds a threshold, column 8 lines 40-67, column 9 lines 50-67, column 11 lines 25-45;

a scanning line driving circuit and a signal line driving circuit that drive the plurality of scanning lines and the signal lines, respectively, are provided, **figure 20 items 106 and 107**

and in that after having written any one of the data signal of positive polarity and the data signal of negative polarity during the selection period of the each frame, the non-data signal having the same polarity as the written data signal and of a maximum pulse duration is written to the pixels, and the after having written the non-data signal, a data signal having the opposite polarity from the data signal written in a previous frame is written to the pixels, **column 8 lines 40-67, column 9 lines 50-67, column 11 lines 25-45.**

However Noses et al. fails to teach of said two-terminal switching element.

Yanagi et al. teaches of said two-terminal switching element, column 16 lines 25-35, wherein Yanagi teaches that a MIM can be alternatively used in place of the three terminal device as a design choice in a device of as taught by Nose et al., having frame inversion in a matrix display system, given that Yanagi teaches of a MIM being alternatively used in place of said three terminal device, in a display having frame inversion, as claimed.

Therefore it would have been obvious to the skilled artisan at the time of the invention to modify the display system of Nose et al., by replacing the three terminal switching device with a two terminal MIM switching device as taught by Yanagi because Yanagi teaches said replacement is a known alternative design choice, for active matrix type display systems, as found in claim 10.

As in claim 14, Nose et al. teaches of each frame being divided into a first sub field and a second sub field, and a data signal having the opposite polarity from the previous frame is written during the first sub frame of the each frame, and the non-data signal is written during the second sub field of the each frame, **column 8 lines 40-67, column 9 lines 50-67, figures 4 and 7.**

As in claim 15, Nose et al. teaches of the period of time for writing and retaining the non-data signal in the second sub field being shorter than the period of time for writing and retaining the data signal in the first sub field, **column 11 lines 48-56.**

As in claim 16, Nose et al. teaches of Electronic equipment, comprising the electro-optical apparatus, **column 11 lines 48-56.**

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 2002/0084969.
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any

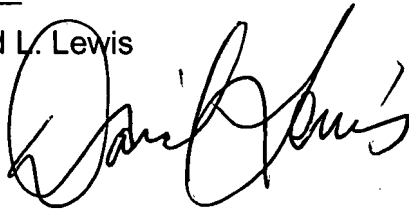
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inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis

May 22, 2007

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the printed name and date.